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Relevant International and Regional Instruments for Sustainable Development of Small-scale Marine Fisheries: Significance to Cambodia

Nao Thuok, Ing Try and Kathe R. Jensen

The Fisheries Administration of the Kingdom of Cambodia has compiled a handbook to assist stakeholders at the academic, scientific and management levels, in obtaining an overview of instruments relevant to the conservation and management of fisheries resources. Over the years, a number of international legal instruments (conventions, protocols, agreements, action plans, memoranda of understanding, and the like) have been adopted by international organizations and their member states. Notwithstanding such numerous instruments, it has remained very difficult to obtain relevant information about those instruments that were signed and ratified by individual countries such as Cambodia, for example. Thus, the said handbook also aims to provide significant details such as membership of Cambodia and data about ratification, accession, and other relevant information. The corresponding website addresses of the relevant instruments and agreements are also provided in the handbook for easy reference.

At the end of World War II all nations saw the need for international cooperation in all areas of human enterprise across national borders. With the establishment in 1945 of the United Nations (UN), a forum was generated for such cooperation, and in the following years several programs, organizations and conventions were established under the auspices of the UN, *e.g.* the Food and Agriculture Organization of the United Nations (FAO) also in 1945, the United Nations Children's Fund (UNICEF) in 1946, and the World Health Organization (WHO) in 1948. From the beginning, it was made clear that for many issues there should be regional rather than global solutions and that developing countries in the regions around the world would be provided the necessary assistance, in terms of financial and human resources.

Three global UN conferences, *i.e.* in 1972, 1992 and 2002, have impacted the way international collaboration on environmental issues is being conducted. The 1972 Conference on the Human Environment in Stockholm, Sweden spelled out in 26 Principles, the rights and responsibilities of mankind towards the environment and natural resources. This was the first global-scale acknowledgement that resources are no longer unlimited and that human activities are negatively impacting on the environment to an unacceptable degree. Specifically,

protection of marine life and resources is mentioned in Principle 7 of the Declaration. An important outcome of the Stockholm Conference was the establishment of the UN Environmental Programme better known as UNEP.

In 1992 the World Summit in Rio de Janeiro, Brazil facilitated the adoption of several conventions, notably the Convention on Biological Diversity and also the UN Framework Convention on Climate Change. During this Conference, such words as “*biodiversity*”, “*sustainability*” and “*precautionary approach*” became “buzz-words” for conservationists, governments and the press. Furthermore, Agenda 21 which is a global program of action for sustainable development was adopted during the said Conference. Most recently, the Earth Summit in Johannesburg, South Africa in 2002 established a number of goals for sustainable development to be implemented by 2015.

In the aspect of biodiversity, a target was set to reduce the loss of biodiversity by 2010. Although politicians worldwide are taking these goals rather seriously, this is not reflected in the allotment of appropriate funding, and the recent Global Biodiversity Outlook-3 Report clearly demonstrated that the 2010 goal has not been reached (CBD Secretariat, 2010). During the same period, civil societies became increasingly involved in conservation and protection of the environment and living resources, where much of the practical works and funding comes from volunteers and local fund-raising campaigns. It is therefore difficult to estimate how much conservation would have been successful in developing countries without the efforts of NGOs.

International conventions undergo metamorphosis as new management approaches and government attitudes change. More particularly, work programs and action plans are modified to reflect current approaches to regional and global problems. In the early days, international collaboration comprised the implementation of regulations and restrictions to address specific problems, *e.g.* overfishing or pollution. Assistance to developing countries was mostly given as bilateral support, *i.e.* country-to-country or country-to-NGO. Later, attempts were made to transfer ownership to the developing countries involved, and most recently, establishment of partnerships seems to be the

favourite approach. At the national level, a shift could be seen from strictly sector-based legislation and management towards more integrated and holistic approaches, often including stakeholder participation.

International Instruments and Global Conventions

It is well recognized that major threats to marine biodiversity include habitat destruction, over-exploitation, pollution including eutrophication (which covers

increased nutrient levels, especially N (nitrogen) and P (phosphorus), caused by land-based human activities, *e.g.* excessive use of fertilizers in agriculture), introduction of invasive alien species and climate change. Since pollution was the first threat to marine life to be recognized internationally, international conventions were established that cover marine pollution (**Box 1**). These include: the Marine Pollution (MARPOL) Convention, Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters (London Convention), Basel Convention on the Control of Transboundary Movements

Box 1. International Instruments and Conventions with Information on Participation of Cambodia

The earliest international convention for the protection of marine biodiversity is the **International Convention for the Regulation of Whaling (ICRW)**, which was signed in 1946 in Washington, D.C. by 15 major whaling countries. The Convention called for the establishment of the International Whaling Commission (IWC) to regulate the commercial capture of whales. Each year, IWC determines the quotas for commercial capture of most species of whales based on scientific stock assessment, and decides that no commercial whaling is permitted in a particular year. As of 31 December 2011, the Convention had 89 member countries with Cambodia becoming a full member on 1 June 2006.

The Convention on Wetlands of International Importance (Ramsar Convention) considers the “conservation and sustainable utilization of wetlands which are habitats of water-birds”. First prepared in 1962, the Convention was adopted only in February 1971 and entered into force in December 1975. The Ramsar Convention introduced the concept of “wise use”, which was later developed into “sustainable use”. The Convention has broadened its scope to cover all aspects of wetlands conservation, recognizing that wetlands are ecosystems of high importance for biodiversity conservation and human well-being. Although UNESCO acts as the depositary organization, the Ramsar Convention is not part of the UN system. As of 31 December 2011, the Convention had 160 member countries, and Cambodia became a member on 23 June 1999. Three protected areas in Cambodia which are considered as Ramsar sites cover a total area of 54,600 ha. Only one of these sites, *i.e.* Koh Kapik in Koh Kong Province, is in the coastal area.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments, also referred to as the Washington Convention because it was adopted and signed in that city in 1973 and entered into force on 1 July 1975. This Convention aims to ensure that international trade in wild animals and plants does not threaten survival of the species. Covering only international trade, this agreement does not deal with capture or trade within countries. The agreement specifies that countries (parties to the Convention) have the responsibility to protect endangered species, and that “international cooperation is essential for the protection of certain species of wild fauna and flora against over-exploitation through international trade” (Wijnstekers, 2011). Species protected under the CITES are placed correspondingly in three “appendices” depending on their status. Trade is regulated by issuing import and export permits, while listing of species in the appendices is determined after detailed expert evaluations and recommendations. For species introduced from the sea, CITES coordinates with UNCLOS (Wijnstekers, 2011). Cambodia became a party to the Convention in 1997.

The Convention on Migratory Species (CMS) or Bonn Convention was adopted in 1979 and came into force on 1 November 1983. The Convention aims to protect migratory species, terrestrial and aquatic, over the whole of their ranges as well as their habitats. Migratory species are listed in one of two appendices although marine migratory fish species are covered by an agreement with UNCLOS. There is a Memorandum of Understanding (MoU) for the conservation of marine turtles and an agreement for the conservation of small cetaceans in the Baltic and North Seas (ASCOBANS). Cambodia has not yet signed this Convention and as a matter of fact, among the Southeast Asian countries only the Philippines is a member. Nevertheless, Cambodia signed the MoU on the conservation and management of marine turtles in the Indian Ocean and Southeast Asia (IOSEA Marine Turtles MoU) in 2002, which has been lodged within the CMS and deposited in Bonn, Germany.

The most important convention relating to conservation of marine biodiversity is the **Convention on Biological Diversity (CBD)** adopted during the Rio Summit in 1992. This Convention focuses on the conservation and sustainable use of biodiversity, and the fair and equitable sharing of benefits derived from genetic resources. One of the decisions of this Convention, the Jakarta Mandate on Marine and Coastal Biological Diversity was adopted in 1995 as a global consensus on the importance of marine and coastal biological diversity. Under this Convention, developing countries can get funding as well as international expert assistance through the Global Environmental Facility (GEF). Cambodia became a party to the Convention in 1995, where the implementation of Biodiversity Enabling Activity resulted in the publication of a biodiversity status report (Smith, 2001). Cambodia received assistance for the development of its National Biodiversity Strategy and Action Plan (MoE, 2002) as well as for the production of its first national report to the CBD, in collaboration with UNDP and FAO, and funded through GEF.

The first **UN Conference on the Law of the Sea (UNCLOS I)** was held in 1958 in Geneva, Switzerland where the first convention was adopted containing definitions of territorial seas, continental shelf and the high seas, as well as provisions for conservation of living resources in the high seas. Over the following 14 years, the UN Convention on the Law of the Sea was developed further and the third version was adopted in 1982 known as UNCLOS III which is probably the largest and most comprehensive convention covering the marine environment and resources. It contains 320 articles and 9 annexes including topics as diverse as establishment of Exclusive Economic Zones (EEZs), mining the ocean bottom, international collaboration on research and technology transfer, right of access and navigation in international waters, protection of living resources, piracy, and regulations for financial support and settling of disputes, and is often referred to as the “Constitution of the Oceans”. With respect to the conservation of marine biodiversity, certain provisions indicate that member states have exclusive rights to utilize living resources within their EEZs, as well as provisions to deal with highly migratory and straddling stocks. In this connection, the UN adopted the United Nations Agreement on straddling and highly migratory fish stocks (UN Fish Stocks Agreement or UNFSA) in 1995, which applies to management of fisheries for straddling and highly migratory stocks in EEZs and the high seas. Cambodia signed this Convention in 1983 but has not yet ratified it.

Box 1. International Instruments and Conventions with Information on Participation of Cambodia (Cont'd)

The first steps towards the establishment of the **World Heritage Convention** were taken by UNESCO in 1959 to save ancient temples in the Nile Valley of Egypt from flooding after the construction of a huge dam (UNESCO World Heritage Centre, 2008). The World Heritage Convention (WHC) was adopted in 1972 with the main objectives of protecting cultural and natural sites that are of Outstanding Universal Value as defined in the convention text, where heritage is defined as “a gift from the past to the future” and there are 10 criteria for the selection of WHC sites. Presently, the Convention has 189 member states and Cambodia accepted the convention in 1991 where there are two WHC sites, namely: the temple complex at Angkor (since 1992) and the Temple of Preah Vihear (since 2008) near Thailand, both of which are cultural heritage sites.

Oil pollution was the first kind of pollution that was recognized in the marine environment, and the **International Convention for the Prevention of Pollution of the Sea by Oil (OILPOL)** was the first international marine pollution convention, which was adopted in 1954 and went into force in 1958. In 1967, a catastrophe occurred in the English Channel (wrecking of oil-tanker Torrey Canyon that discharged crude oil), which indicated that existing regulations and legislations were inadequate for accidents of such magnitude. Thus, the International Maritime Organization (IMO) drafted a plan of action which resulted in the International Convention for the Prevention of Pollution from Ships in 1973 (MARPOL 73/78). This Convention includes protocols, annexes and amendments added over the years as new problems had to be addressed. It was first adopted on 2 Nov. 1973 and a protocol was added on 17 February 1978 and entered into force on 2 October 1983, including Annex I (oil pollution). Annex II (noxious liquid substances) was entered into force on 6 April 1987, Annex V (garbage) on 31 December 1988, Annex III (harmful substances) on 1 July 1992, and Annex IV (sewage) on 27 September 2003. Annex VI (air pollution) was adopted in September 1997 and entered into force on 19 May 2005. The Convention indicates that it is the responsibility of flag states to ensure that vessels flying their flags do not discharge wastes or toxic substances into the sea, while it is the responsibility of port states to provide facilities for safe disposal of wastes. Cambodia has signed MARPOL 73/78 Annexes I-V but not Annex VI. Annex I, which has recently been amended (adopted 15 October 2004) and entered into force on 1 January 2007, includes amendments such as the phasing out of single-hull tankers. Meanwhile, revised Annex IV was adopted on 1 April 2004 and entered into force on 1 August 2005. Contrary to other conventions, MARPOL does not only depend on certain number of states signing it, but also requires that mercantile fleet of these states covers at least 50% of the world's total fleet by tonnage.

The **Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter** or the so-called London Convention was adopted in 1972 and entered into force in 1975. Like MARPOL, this convention is housed with the IMO and has the objectives of controlling the sources of marine pollution and preventing pollution of the sea by dumping materials at sea. Prior to this convention, it was customary to transport and dump wastes at sea that were too dangerous to store on land (IMO Brochure in <http://www.imo.org/OurWork/Environment/SpecialProgrammesAndInitiatives/Pages/London-Convention-and-Protocol.aspx>). However, a protocol was adopted in 1996 and entered into force in 2006, which prohibits all dumping with the exception of a few substances that are considered “safe”. The Convention also provides guidelines for evaluating various wastes and analyzing materials intended to be dumped at sea. Cambodia has not yet signed this Convention.

The **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal** was adopted in 1989 and entered into force in 1992. This developed due to an increasing trend in the shipping of hazardous wastes to developing countries where improper handling caused severe problems to human health as well as the environment. Under the Convention, any transboundary transport without “prior informed consent” is illegal, and parties are required to prevent and punish illegal transport as a criminal act. Parties are also required, as far as possible, to dispose of hazardous substances within the country, or as close to the country as possible. Cambodia has acceded to this convention in 2001.

The **Convention on Persistent Organic Pollutants (POPs)** or Stockholm Convention, which was adopted in 2001 aims to protect human health and the environment from the effects of POPs, considering that these substances, such as dioxins, have strong negative effects on living organisms, and are known to bio-accumulate and bio-magnify in the aquatic ecosystems. The convention entered into force on 17 May 2004, and Cambodia signed the Convention on 23 May 2001, but has not yet ratified it.

The **International Convention on the Control of Harmful Anti-fouling Systems on Ships (HAFS)** is another Convention adopted by members of IMO on 5 October 2001. It entered into force on 17 September 2008 after the signing by 33 states representing over 50% of the total world mercantile fleet by tonnage. Under this Convention, the international collaboration on addressing the issue of Tributyltin (TBT) pollution from anti-fouling paints started in 1988, and the first resolution was adopted by the Marine Environment Protection Committee (MEPC) of the IMO in November 1990. This resolution which banned the use of TBT in anti-fouling paints for vessels smaller than 25 m in length, was followed by another resolution in 1999, which calls on the MEPC to develop a global legally binding instrument to address the harmful effects of anti-fouling system. The Convention stipulates the phasing-out of the use of TBT from 2003 through 2008, but since the Convention had just entered into force, this time-frame was extended. Cambodia has not yet signed this Convention.

The **International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM)** is another Convention under IMO, which was adopted in 2004 and will enter into force only after 30 states representing 35% of the world's mercantile tonnage have signed. Its main objective is to prevent or minimize the transfer of harmful aquatic organisms and pathogens through the ships' ballast water and sediments. So far 28 countries, representing 25% of the world's tonnage have already signed the Convention.

The **United Nations Framework Convention on Climate Change (UNFCCC)** was launched at the Earth Summit in 1992, for the purpose of controlling human impacts on global climate changes. It entered into force on 17 March 1996, and Cambodia has ratified (acceded) this convention on 18 December 1995. This Convention recognizes that global climate change may affect marine ecosystems in a number of ways, most importantly through: (1) increased sea temperatures, (2) changes in sea level caused by melting of polar ice caps, precipitation and surface evaporation, (3) changes in annual current patterns (e.g. El Niño), and (4) increased acidity of sea water which makes it difficult for corals and other organisms to produce calcareous shells or skeletons. Coral bleaching is one of the major threats caused by increased sea temperature. Cambodia signed this Convention on 22 August 2002 including the Kyoto Protocol to minimize the emission of greenhouse gasses (GHG).

of Hazardous Wastes and Their Disposal, Convention on Persistent Organic Pollutants (Stockholm Convention), the International Convention on the Control of Harmful Anti-

fouling Systems on Ships (HAFS Convention), and the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention).

Table 1. Conventions related to conservation of marine biodiversity

| Convention | Depository organization | Year adopted | Year entered into force | Cambodia signed/ratified/acceded | Web-site |
|------------------------|--|----------------|-------------------------|----------------------------------|--|
| IWC | Government of the USA | 1946 | 1948 | 2006 | http://www.iwcoffice.org/commission/convention.htm |
| Ramsar | UNESCO | 1971 | 1975 | 1999 | http://www.ramsar.org/ |
| WHC | UNESCO | 1972 | 1975 | 1991 | http://whc.unesco.org/ |
| London Convention | IMO | 1972/1996 | 1975/2006 | - | http://www.imo.org/ |
| CITES | Government of Switzerland (Secretariat under UNEP) | 1973 | 1975 | 1997 | http://www.cites.org/ |
| MARPOL | IMO | 1973/1978/1997 | 1983-2005 | 1994 | http://www.imo.org/ |
| CMS or Bonn Convention | UN Secretary General | 1979 | 1983 | - | http://www.cms.int/ |
| UNCLOS | UN Secretary General | 1982 | 1994 | 1983 | http://www.un.org/Depts/los/index.htm |
| Basel Convention | UN Secretary General (Secretariat with UNEP) | 1989 | 1992 | 2001 | http://www.basel.int/ |
| CBD | UN Secretary General | 1992 | 1993 | 1995 | http://www.cbd.int/ |
| UNFCCC | UN Secretary General | 1992 | 1996 | 1995 | http://unfccc.int/2860.php |
| HAFS | IMO | 2001 | 2008 | - | http://www.imo.org/ |
| Stockholm Convention | UN Secretary General (Secretariat with UNEP) | 2001 | 2004 | 2001/ 2006 | http://chm.pops.int/ http://www.pops.int/old_default.htm |
| BWM Convention | IMO | 2004 | - | - | http://www.imo.org/ |

Meanwhile, over-exploitation of marine living resources is covered by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Convention on Wetlands of International Importance (Ramsar), Convention on Migratory Species (CMS) or the Bonn Convention, International Convention for the Regulation of Whaling (ICRW) that set up the International Whaling Commission (IWC), Biodiversity Convention (CBD), and parts of the United Nations Convention on the Law of the Sea (UNCLOS), which date back before the Rio Summit in 1992. While habitat destruction is covered by the World Heritage Convention (WHC), Ramsar Convention and the UNCLOS, introduction of alien aquatic species is the concern of CBD and the Ballast Water Convention, with climate change being under a specific convention, the United Nations Framework Convention on Climate Change (UNFCCC). An overview of the status of ratification and/or accession by Cambodia to various international conventions relating to the protection of marine environment and the conservation of marine biodiversity is given in **Table 1**.

Other Instruments

Furthermore, 16 conventions and agreements have been lodged with the Food and Agriculture Organization of the

United Nations (FAO). Several of these are concerned with marine resources, such as the Agreement for the Establishment of the Asia-Pacific Fishery Commission (APFIC) in 1948, Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (FAO Compliance Agreement) in 1993, and Agreement for the Establishment of the Indian Ocean Tuna Commission (IOTC) in 1993. In addition, a number of conventions and agreements are deposited with the Office of the Director-General of FAO, such as: the Agreement for the Establishment of the Intergovernmental Organization for Marketing Information and Technical Advisory Services for Fishery Products in the Asia and Pacific Region (INFOFISH) in 1986; and the Agreement on the Establishment of the Network of Aquaculture Centres in Asia-Pacific (NACA) in 1988.

The FAO Fisheries and Aquaculture Department and its principal authority, the Committee on Fisheries (COFI) is a global intergovernmental forum for examining fisheries issues and providing recommendations for governments, NGOs, and other stakeholders. COFI was established in 1965 and has now two sub-committees, one on Fish Trade and another on Aquaculture. Some of its important outputs are the Code of Conduct for Responsible Fisheries and

several International Action Plans such as the International Plan of Action on Conservation and Management of Sharks (IPOA-Sharks); International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated Fisheries (IPOA-IUU); International Plan of Action on Management of Fishing Capacity (IPOA-Capacity); and International Plan of Action on Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA-Seabirds).

Moreover, Agenda 21 which was adopted in 1992 during the Rio Summit is a global program of action for sustainable development. Comprising 40 chapters in 4 sections (I - Social and Economic Dimensions, II - Conservation and Management of Resources for Development, III - Strengthening the Role of Major Groups, and IV - Means of Implementation), several chapters are relevant to the conservation of marine biodiversity, particularly Chapter 17 on the protection of the oceans, all kinds of seas, including enclosed and semi-enclosed seas, and coastal areas and the protection, rational use and development of their living resources. An action agenda for the UN, other multilateral organizations and individual governments, Agenda 21 should be implemented at local, national, regional and global levels. Cambodia does not yet have an official National Agenda 21, but several steps have been taken to integrate sustainability in the country's future development plans.

International Non-governmental Organizations (INGOs)

The afore-mentioned conventions and organizations have national governments as their parties. However, there are few global-scale non-government organizations (NGOs) that have very important roles for the conservation of marine biodiversity. For example, the World Conservation Union or IUCN (<http://www.iucn.org/>) and the World Wide Fund for Nature or WWF (<http://www.panda.org>) provide expert knowledge and also practical field assistance to conservation projects at local or transboundary scales. The production of Red Lists assessing the threat-status of individual species is a major contribution of the IUCN Species Survival Commission. These lists as well as the Protected Areas Categories defined by the World Commission on Protected Areas are among the tools used by conservation practitioners in many countries.

IUCN and WWF both work in collaboration with local conservation managers and NGOs on the implementation of protected areas and other conservation measures. Both IUCN and WWF have their headquarters in Switzerland. In 1998, WWF produced the first Living Planet Report and since 2006 these reports have included both the Living

Planet Index and the Ecological Footprint, which can be used as indicators for the state of ecosystems and human impacts. TRAFFIC (<http://www.traffic.org/>) is a wildlife trade monitoring network, which was established in 1976 with WWF and IUCN as its partner organizations and also collaborates closely with CITES. Its headquarters are in Cambridge in the UK.

Regional Instruments

UNEP launched a Regional Seas Program in 1974 in 18 Regional Seas, and the East Asian Seas Action Plan was initiated in 1981 with five member states, namely: Indonesia, Philippines, Malaysia, Thailand, and Singapore. The main objective of the East Asian Seas (EAS) program is focused on the development and protection of marine environment and coastal areas for the health and well-being of present and future generations. Emphasizing on the assessment of the state of the marine environment including assessment of activities (land- or sea-based) that impact on environmental quality as well as on the environmental impact assessment for marine and coastal development activities for the protection and use of renewable resources in a sustainable manner, the EAS program was expanded in 1994 to comprise ten countries: namely: Australia, Cambodia, China, Indonesia, Malaysia, Philippines, Republic of Korea, Singapore, Thailand, and Vietnam.

In 1999, the Coordinating Body on the Seas of East Asia (COBSEA), which until recently was funded by UNEP, launched a comprehensive project on Reversing Environmental Degradation Trends in the South China Sea (SCS). The project started with a comprehensive analysis of existing environmental issues (Talaue-McManus, 2000), and over the succeeding years working groups were established in each of the participating countries to cover the various problems that had been identified. As a result, numerous data have been collected while reports have been published (<http://www.unepscs.org/>), the results of which are now being incorporated in national and regional biodiversity conservation and environmental management legislations. All data are stored at the Southeast Asia System for Analysis, Research and Training, Regional Center (SEA START RC) in Bangkok, Thailand (<http://www.start.or.th/>). Recently, COBSEA in collaboration with the ASEAN initiated a working group on Coastal and Marine Environment (AWGCME). The Global International Waters Assessment (GIWA) is another UNEP-associated project which is based on results of regional assessments. For the South China Sea, which is one of the regional marine areas, the resulting assessment report (UNEP, 2005) is available at <http://www.unep.org/dewa/giwa/publications/>. In addition, a number of regional

Box 2. International/Regional organizations working for the sustainable development of fisheries

WorldFish Center began in 1977 as the International Center for Living Aquatic Resources Management (ICLARM) based in the Philippines. In 2000, the name was changed and its headquarters were moved to Malaysia. WorldFish Center is an international, non-profit, non-government organization working in the developing world. It is supported by the Consultative Group on International Agricultural Research (CGIAR) which comprises a group of investors including development banks, governments, and philanthropic organizations, among others. WorldFish Center works for the development of sustainable small-scale fisheries and aquaculture for poverty reduction, including socio-economic as well as natural resource management issues. In 1999, a series of working papers on fisheries and coastal resources in several Asian countries including Cambodia was produced (ICLARM, 1999). Several reports have been published on various aspects of aquatic resources and fisheries in Cambodia (e.g. Kosal, 2004; Sverdrup-Jensen *et al.*, 2006). The WorldFish Center also houses a number of databases including the very useful FishBase (<http://www.fishbase.org/>) with information on identification and distribution of more than 30,000 species of fish from all over the world.

The Southeast Asian Fisheries Development Center (SEAFDEC) is an intergovernmental organization established in 1967 for the promotion of sustainable fisheries development in Southeast Asia. SEAFDEC has 11 Member Countries, namely: Brunei Darussalam, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam. One of its activities is on marine resources conservation including sharks, sea turtles, sea horses, abalone, giant clams, and sea cucumbers. Other activities include developing hatcheries/nurseries, implementing Turtle Excluding Devices (TEDs) and other by-catch reduction devices. SEAFDEC also works with governments in the ASEAN especially in implementing the Regional Code of Conduct for Responsible Fisheries as well as National Plans of Action in collaboration with FAO. SEAFDEC organizes training courses and workshops on various aspects of fisheries management, as well as works closely with CITES and WTO.

The Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) was started in 1994 as a program to prevent marine pollution in the East Asian region, and expanded later to include integrated coastal management. Staff from Cambodia participated in training courses and workshops from the pilot phase of PEMSEA. In 2003, PEMSEA developed the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA), with 12 countries including Cambodia signing the Putrajaya Declaration to implement this strategy. PEMSEA now works towards attaining the Millennium Development Goals of the countries in the region. In 2009, eleven member countries signed the Manila Declaration to implement the Integrated Coastal Management for Sustainable Development and Climate Change Adaptation in the Seas of East Asia Region. Unfortunately, most PEMSEA publications are not available for free download, while there seems to be some problems about overlapping of responsibilities and activities between PEMSEA and COBSEA (Kirkman, 2006).

The Asia-Pacific Fishery Commission (APFIC) is a regional body under the FAO. The Agreement dates back to 1948 when it was called the Indo-Pacific Fisheries Council (IPFC) and since then, several amendments have been added (*i.e.*, in 1958, 1961, 1977, 1994, 1996). In 1994, the name was changed to APFIC and its work now concentrates on the regional aspects of fisheries issues. APFIC organizes regional workshops and publishes guidelines and technical reports, which are available for download from its web-site (Table 2).

The Network of Aquaculture Centres in Asia-Pacific (NACA) was launched through an Agreement signed in Bangkok in January 1988. It entered into force in 1990 and was deposited with FAO. NACA is an intergovernmental organization concerned with sustainable aquaculture development, health of aquatic organisms, genetics and biodiversity and other issues of aquaculture. NACA supported the STREAM (Support to Regional Aquatic Resources Management) project, which had activities in Cambodia and Vietnam.

The Intergovernmental Organization for Marketing Information and Technical Advisory Services for Fisheries Products in the Asia and Pacific Region (INFOFISH) was originally established based on an Agreement of FAO, but is now an intergovernmental organization. INFOFISH provides information on trade, markets, prices and other post-harvest issues (Table 2). Cambodia has been a member of INFOFISH since 2006.

The Intergovernmental Oceanographic Commission (IOC) has the IOC-WESTPAC as a regional sub-commission for the West Pacific region (WESTPAC). As of the present, Cambodia is not a member of this sub-commission. Several projects are associated with the IOC-WESTPAC, e.g. the regional Harmful Algal Blooms (HAB) project, the Southeast Asian Global Ocean Observing System (SEAGOOS), and the Marine and Coastal Biodiversity and Its Management (WESTPAC-MCBM) project. The main objectives of these projects are in line with the implementation of global IOC programmes, e.g. HAB, and the development and implementation of regional ocean observations (e.g. SEAGOOS) and other marine scientific research projects and activities (e.g. WESTPAC-MCBM).

organizations are involved in the sustainable development of fisheries in Southeast Asia as shown in **Box 2**. The details of some important regional instruments and organizations associated with living marine resources are summarized in **Table 2**.

Conclusion and Way Forward

Cambodia is in the stage of implementing processes of decentralization and deconcentration of its fisheries. Considering that these courses of action require increased stakeholder participation, it is necessary that all stakeholders are appropriately informed to encourage them to participate in the various community management councils as well as in the subsequent activities. Cambodia has tried its best to access/ratify/sign the various conventions and instruments as their roles in the sustainable development of

small-scale marine fisheries in the country have been well recognized. Therefore, it has also become crucial for the Government of Cambodia to integrate and/or mainstream in its fisheries policies and national legislations, relevant provisions of international conventions and agreements for the sustainability of the country's marine fisheries industry.

The fisheries sector in Cambodia comprises extensive inland capture fisheries, a relatively small number of aquaculture activities, and marine capture fisheries that operate mainly in the country's EEZ of about 55,000 km² (Ing Try and Hort Sitha, 2011). Taking into account the country's marine features that embrace a coastline of only about 435 km along the Gulf of Thailand, production from marine capture fisheries in 2010 contributed only about 16% to the country's total fisheries production (**Table 3**). Marine fisheries in Cambodia could be classified into

Table 2. Regional instruments and organizations associated with living marine resources

| Regional instruments/organizations | Location of headquarters/depositary organizations | Year adopted/amended | Year entered into force | Cambodia signed/ratified | Web-site |
|------------------------------------|--|----------------------|-------------------------|--------------------------|---|
| Action Plan for East Asian Seas | Part of UNEP Regional Seas program, with headquarters in Bangkok, Thailand | 1981/1994 | 1983/1994 | 1994 | http://www.unep.org/regionalseas/programmes/unpro/eastasian/instruments/default.asp |
| COBSEA | Associated with UNEP with headquarters in Bangkok, Thailand | 1994 | | 1995 | http://www.cobsea.org/ |
| PEMSEA | Associated with UNDP and IMO with headquarters in Quezon City, Philippines | 1994/2003 | | 1994 | http://www.pemsea.org/ |
| SEAFDEC | Secretariat as its headquarters in Bangkok, Thailand | 1967 | | 2001 | http://www.seafdec.org/ |
| WorldFish Center | Headquarters in Penang, Malaysia (since 2000) | 1977/1993 | | | http://www.worldfishcenter.org/ |
| APFIC | Agreement associated with FAO with headquarters in Bangkok, Thailand | 1948/1997 | | 1951 | http://www.apfic.org |
| INFOFISH | Headquarters in Kuala Lumpur, Malaysia | 1986/1995 | 1987/1996 | 2006 | http://www.infofish.org/ |
| NACA | Agreement associated with FAO with headquarters in Bangkok, Thailand | 1988 | 1990 | 1992 | http://www.enaca.org/ |
| IOC/WESTPAC | Associated with UNESCO with headquarters in Bangkok, Thailand | 1989 | | - | http://www.unescobkk.org/wespac/ |

Table 3. Fisheries production of Cambodia (in metric tons: mt)

| Year | Total Fisheries Production (mt) | Marine Fisheries Production | | Inland Fisheries Production | | Aquaculture Production | |
|------|---------------------------------|-----------------------------|-----------------------|-----------------------------|-----------------------|------------------------|-----------------------|
| | | Production (mt) | % of Total Production | Production (mt) | % of Total Production | Production (mt) | % of Total Production |
| 2006 | 661,542 | 60,500 | 9.1 | 559,642 | 84.6 | 41,400 | 6.3 |
| 2007 | 525,100 | 54,900 | 10.4 | 420,000 | 80.0 | 50,200 | 9.6 |
| 2008 | 536,320 | 66,000 | 12.3 | 430,600 | 80.3 | 39,720 | 7.4 |
| 2009 | 515,000 | 75,000 | 14.6 | 390,000 | 75.7 | 50,000 | 9.7 |
| 2010 | 550,000 | 85,000 | 15.5 | 405,000 | 73.6 | 60,000 | 10.9 |

Source: Fishery Statistical Bulletin of Southeast Asia 2010 (SEAFDEC, 2012)

coastal and commercial fisheries, where coastal fisheries are also known as family-scale fisheries operating from the coast to 20 m water depth, and using fishing boats without engines or with engines of less than 50 hp capacity. Commercial fisheries make use of large-scale fishing boats with engine capacity of more than 50 hp and operate in waters more than 20 m in depth to the limit of the country's EEZ.

The coastal waters of Cambodia support a diverse range of fish and invertebrate species, where the main commercially-important marine aquatic species include mackerels, scads, anchovies and snappers, penaeid shrimps, blue swimming crabs, cuttlefish, squid, green mussels, oysters and blood cockles. Recently, the country's marine fisheries have significantly expanded, especially in terms of the number of fishers and fishing boats that resulted in increased pressure on the fishery resources. Moreover, reports have also indicated that the country's habitats have been degraded due to unabated destructive fishing practices that continue

until the present, such as the use of dynamites and cyanide in fishing as well as illegal trawling in shallow coastal areas known to host the nursing stages of fish.

In addition, the uncontrolled destruction of mangrove areas for firewood and aquaculture as well as siltation and pollution from agriculture and industrialization activities aggravate the already dwindling status of the country's marine fisheries resources. In summary, Cambodia envisions to attain the sustainability of its marine fisheries resources to enable the country to uplift the socio-economic conditions of its people especially those living in coastal fishing communities.

The present handbook therefore would serve as useful reference for the country to attain its development goals, as it summarizes the most important information about international and regional conventions and instruments related to the sustainable development of small-scale marine fisheries as well as the conservation of marine resources and

biodiversity, especially catering to developing countries of the Southeast Asian region including Cambodia. The international and regional conventions and instruments that are tabulated in the handbook include links to their respective web-sites to permit easy access in case further information is required.

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